(19) Europäisches Patentamt
European Patent Office
Office européen des brevets

(11) Publication number: **0 631 137 A3**

(12) EUROPEAN PATENT APPLICATION

(21) Application number: **94108398.2**

(22) Date of filing: **31.05.94**

(51) Int. Cl.[5]: **A61B 5/00, G01N 21/35**

(30) Priority: **25.06.93 US 83056**

(43) Date of publication of application: **28.12.94 Bulletin 94/52**

(84) Designated Contracting States: **DE FR GB IT**

(88) Date of deferred publication of search report: **14.06.95 Bulletin 95/24**

(71) Applicant: **Stark, Edward W.**
160 West End Avenue,
Suite 3M
New York, New York 10023 (US)

(72) Inventor: **Stark, Edward W.**
160 West End Avenue,
Suite 3M
New York, New York 10023 (US)

(74) Representative: **Geyer, Werner et al**
Patentanwälte
Geyer, Fehners & Partner,
Perhamerstrasse 31
D-80687 München (DE)

(54) Glucose related measurement method and apparatus.

(57) A method of and apparatus for determining stable and labile glycated compound levels in blood. Electromagnetic energy covering a multiplicity of wavelength bands within a wavelength range from 380 nm to 2500 nm is directed into a sample volume containing blood. Portions of the energy representative of both the source energy and energy after interacting with material within the sample volume are collected. The energy portions carry information relating to the source energy and the levels of labile and stable compounds within the sample volume, respectively. The portions are converted into electrical signals representative of the intensities of the respective portions in each of the multiplicity of wavelength bands. The electrical signals are pretreated in accordance with known information to remove deviations from established reference conditions to form data signals that are a function of the fractional portion of the energy in each of the wavelength bands absorbed and scattered by the material in the measurement volume. Selected groups of the data signals are processed in accordance with chemometric models developed from analysis of such data signals together with known values of the analytes derived from measurements on a calibration set of samples larger in number than the number of wavelength bands included in the set of the selected groups of data signals to develop analyte signals representative of the amounts of glycated compounds for which chemometric models have been developed and utilized. The analyte signals may be stored and displayed in a form suitable for medical use.

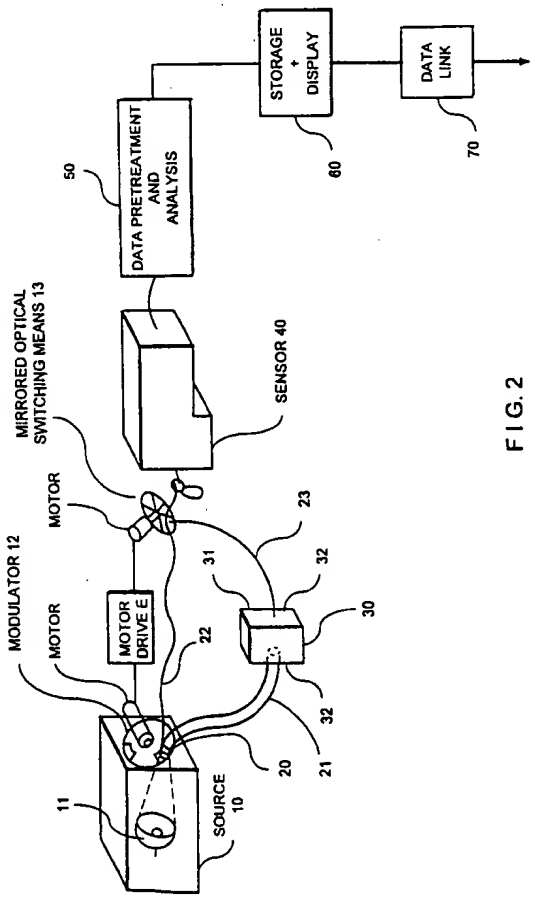

FIG. 2

EP 0 631 137 A3

European Patent Office

EUROPEAN SEARCH REPORT

Application Number
EP 94 10 8398

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.5)
A	EP-A-0 222 419 (INST.BIOINGENERIA) 20 May 1987 * column 1 - column 4 *	1,6,11, 17,20,21	A61B5/00 G01N21/35
A,D	US-A-5 204 532 (ROSENTHAL) 20 April 1993	1,6,11, 17,20,21	
A,D	US-A-4 975 581 (ROBINSON) 4 December 1990 COL.9-10;15-17	1,6,11, 17,20,21	
A,D	US-A-5 077 476 (ROSENTHAL) 31 December 1991 * column 3 - column 6 *	1,6,11, 17,20,21	
A	APPLIED SPECTROSCOPY, vol.46, no.10, 1 October 1992 pages 1575 - 1578 HAALAND ET AL. 'REAGENTLESS NEAR INFRARED DETERMINATION,ETC.'	1,11	

TECHNICAL FIELDS SEARCHED (Int.Cl.5)

G01N
A61B

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
THE HAGUE	21 April 1995	Boehm, C

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
Y : particularly relevant if combined with another document of the same category
A : technological background
O : non-written disclosure
P : intermediate document

T : theory or principle underlying the invention
E : earlier patent document, but published on, or after the filing date
D : document cited in the application
L : document cited for other reasons

& : member of the same patent family, corresponding document

EPO FORM 1503 03.82 (P04C01)